

Master of Science in Horticulture and Natural Resources, Cooperative Extension Focus

A master's degree emphasizing Extension Horticulture and Natural Resources prepares students for careers as Cooperative Extension professionals at county, district, regional, state, and national levels. Students will enhance their technical expertise in Extension program needs assessment, planning, curriculum design, program execution, and evaluation while increasing their knowledge in a discipline in the Department of Horticulture and Natural Resources (HNR; horticulture, wildlife, or parks). Developing soft skills such as communication, leadership, and volunteer management is integrated into the graduate program.

Upon completion of the HNR master's program, students will be able to demonstrate their:

- knowledge and competence in specific areas, issues, and problems in their field of study
- knowledge in allied and relevant areas in their field of study to foster creativity and problem-solving skills
- ability for critical and independent thinking in analyzing information and identifying valid scientific problems
- ability to plan, design and develop strategies to solve problems using sound scientific methodologies
- ability to conduct scientific investigation to solve problems and accomplish the set objectives (Thesis Option)
- ability to effectively communicate in various formats and settings
- awareness of and adherence to the ethical and professional conduct and responsibility that is required by the profession and community

This program is available to both full- and part-time students and can be completed on-campus, via distance courses, or a combination of on-campus and distance coursework. In general, assistantships are not provided for this program. On occasion, a grant-funded opportunity may be available and will be posted on the HNR website. Current employees of Kansas State University can pursue a degree through the tuition assistance program (3 hours of credit during each fall, spring, and summer semester; <https://www.k-state.edu/hr/benefits/financial/tuition/>). Current employee students are encouraged, and these projects can be designed around local Extension programming efforts.

There are two paths to completing a master's degree in the Department of Horticulture and Natural Resources: thesis and non-thesis. The thesis option involves conducting original research and will prepare students for a doctoral degree if desired. The non-thesis option involves a comprehensive report and is considered a terminal degree.

The Department of Horticulture and Natural Resources requires:

- At least 30 credit hours beyond a BS degree
- 2 credit hours of Graduate Seminar ([HORT 951](#))

- At least 3 credit hours of Research Methods and/or Scientific Writing
- At least 3 credit hours of 700 level or above Statistic courses
- Credit hours of MS thesis research or report
 - HORT 898 – Master’s Report (need 2 credit hours for non-thesis option)
 - HORT 899 – Research-MS (need 6 to 8 credit hours for thesis option)
- Other courses to be selected with major advisor and committee (16 hours—5 or 6 other courses)

An advisory committee composed of at least three members of the Graduate Faculty, including the major professor, will help guide the master’s degree process. More information is available on the HNR website (<https://hnr.k-state.edu/academics/graduate-programs/master.html>).

Students must be self-motivated, responsible, and abide by the Kansas State University honor and integrity system (<https://www.k-state.edu/honor/>). Successful students in this program will also exhibit curiosity, perseverance, resilience, adaptability, positivity, kindness, and a genuine desire to help others through the craft and discipline of Extension education.

Opportunities will be made available for students to communicate about their work through campus forums and scientific discipline conferences. Results of the project or thesis are expected to be shared via written abstracts, conference proceedings, or refereed journal articles in an appropriate publication. Your major professor will assist in identifying financial resources to attend conferences (here are some resources for K-State Research and Extension Employees: https://www.ksre.k-state.edu/employee_resources/programming/other_resources/financial-assistance-summary.html). Oral presentations related to the project at industry or Extension events and digital products (video, audio, blog posts, social media posts, etc.) are encouraged.

The program of study should be customized to fit the student. Whether you are new to Extension or have significant experience, courses can be selected to support your professional development. Below are courses available at Kansas State University that may interest students in this graduate program. Not all courses are available every semester, nor is this list comprehensive. Many courses have prerequisites to consider. Visit the course catalog and explore the learning opportunities available (<https://courses.k-state.edu/>). **Ag*IDEA** notes courses available through the Great Plains Interactive Distance Education Alliance (<https://www.k-state.edu/ksugpidea/>). The volume of course offerings listed below is intended to spur your thoughts on what will help you the most in your career—not to overwhelm you.

Course Options/Ideas (at least 18 hours should be at the 700 level and above; therefore, only a few hours may be at the 600 level—they are included here for your potential interest):

- Research Methods and/or Scientific Writing (need at least 3 credit hours)
 - HORT 846 - Plant Research Methods
 - PMC 810 – Quantitative Research Methods in Park Management and Conservation
 - AGCOM 810 – Scientific Communication

- AGED 800 – Research Methods in Agricultural Education and Communications
Ag*IDEA
- AGED 810 – Social Data Analysis in Communications and Agricultural Education
Ag*IDEA
- AGED 838 – Qualitative Design in Agricultural Education and Communications
Ag*IDEA
- ENTOM 800 – Professional Development in Entomology and Related Sciences
- 700 level or above Statistic courses (need at least 3 credit hours)
 - STAT 703 – Introduction to Statistical Methods for the Sciences
 - STAT 705 – Regression and Analysis of Variance
 - STAT 725 – Introduction to SAS Computing
 - STAT 726 – Introduction to R Computing
- Horticulture (500-level courses are not allowed)
 - HORT 600 – Herbaceous Landscape Plant Production
 - HORT 610 – Floral Planning for Special Events
 - HORT 615 – Wedding Flowers
 - HORT 620 – Unique Floral Designs
 - HORT 625 – Floral Crops Production and Handling
 - HORT 630 – General Viticulture
 - HORT 640 – Horticultural Problems (no more than 3 hours can be applied to the MS degree)
 - Entomology and Pest Management Ag*IDEA
 - Arboriculture Ag*IDEA
 - Fruit and Nut Tree Production Ag*IDEA
 - Biological Control of Pests Ag*IDEA
 - HORT 650 – Agrarian Traditions: Literature Shaping Modern Food Movements
 - HORT 695 – Introduction to Permaculture Ag*IDEA
 - HORT 705 – Hydroponic Food Production
 - HORT 706 – Advanced Culture of Golf and Sports Turf
 - HORT 710 – Plant Cell, Tissue and Organ Culture
 - HORT 715 – Advanced Interiorscaping
 - HORT 720 – Environmental Nursery Production Ag*IDEA
 - HORT 725 – Postharvest Technology and Physiology of Horticultural Crops
 - HORT 751 – Human Issues in Horticultural Therapy
 - HORT 752 – Horticulture in Horticultural Therapy
 - HORT 753 – Clinical Skills in Horticulture Therapy
 - HORT 755 – Practicum in Horticulture Therapy
 - HORT 760 – Business Management for Horticultural Enterprises Ag*IDEA
 - HORT 775 – Plant Breeding Methods in Horticulture Ag*IDEA
 - HORT 780 – Health-Promoting Phytochemicals: Fruits and Vegetables
 - HORT 790 – Sustainable Agriculture
 - HORT 791 – Urban Agriculture Ag*IDEA
 - HORT 792 – Urban Food Production Practicum
 - HORT 793 – Farm to Fork Produce Safety

- HORT 794 – Urban Food Systems **Ag*IDEA**
- HORT 795 – Urban Agriculture Study Tour
- HORT 796 – Professional Development in Urban Food Systems
- HORT 800 – Horticultural Physiology
- HORT 815 – Plant Nutrition and Nutrient Management **Ag*IDEA**
- HORT 820 – Quantitative Agricultural Remote Sensing
- HORT 880 – Topics in Horticulture (no more than 3 hours can be applied to the MS degree)
- HORT 910 – Advances in Plant Cell Culture
- HORT 940 – Plant Regulators in Horticulture
- HORT 960 – Environmental Plant Stress **Ag*IDEA**
- HORT 970 – Topics in Horticultural Therapy
- Wildlife and Outdoor Enterprise Management
 - WOEM 620 – Human-Wildlife Conflicts
 - WOEM 855 – Resource Selection Methods and Theory
- Park Management and Conservation
 - PMC 620 – Park Planning and Design
 - PMC 635 – Methods of Environmental Interpretation
 - PMC 690 – Parks and Recreation Administration
 - PMC 710 – Natural Resource Based Tourism
 - PMC 740 – Advanced Environmental Interpretation
 - PMC 820 – Outdoor Recreation Behavior
 - PMC 830 – Conservation Attitudes and Behaviors
- Agricultural Communications
 - AGCOM 610 – Crisis Communication **Ag*IDEA**
 - AGCOM 635 – Advanced Multimedia Production in Agriculture and Food
 - AGCOM 712 – Environmental Communication **Ag*IDEA**
 - AGCOM 716 – Technical Communication in Agricultural Education and Communications
 - AGCOM 733 – Graphical Design and Theory in Agricultural Communications
 - AGCOM 738 – Utilizing Online Media in Agricultural Communications
 - AGCOM 814 – Graduate Studies in Leadership Communication
 - AGCOM 820 – Communicating Ethical Issues in Agriculture
 - AGCOM 830 – New Media Technology **Ag*IDEA**
 - AGCOM 840 – Diffusion of Innovations **Ag*IDEA**
 - AGCOM 850 – Knowledge Management in Agriculture and Natural Resources
 - AGCOM 945 – Social Science Research for Public Problem Solving
- Agricultural Education
 - AGED 533 – Educating the Public about Agriculture
 - AGED 537 – Planning Programs in Extension & Non-Formal Education
 - AGED 704 – Extension Organization and Programs
 - AGED 706 – Principles of Teaching Adults in Extension **Ag*IDEA**
 - AGED 735 – Methods of Technological Change in Agriculture

- AGED 810 – Social Data Analysis in Communications and Agricultural Education
Ag*IDEA
- AGED 820 – History and Philosophy of Agricultural and Extension Education
Ag*IDEA
- AGED 830 – The History and Leadership of the Land Grant University Ag*IDEA
- AGED 831 – Survey Development in Agricultural Education and Communications
Ag*IDEA
- AGED 834 – International Agriculture and Extension Education
- AGED 840 – Advanced Theory and Methods of Teaching Agriculture Ag*IDEA
- AGED 858 – Program Planning and Evaluation in Agricultural and Extension
Education Ag*IDEA
- AGED 859 – Management of Volunteers in Agricultural and Extension Education
Ag*IDEA
- AGED 860 – Program Evaluation in Agricultural and Extension Education Ag*IDEA
- Entomology
 - ENTOM 612 – Insect Pest Diagnosis
 - ENTOM 620 – Pesticides, People, and the Environment
 - ENTOM 621 – Introduction to Biological Control
 - ENTOM 655 – Plant Resistance to Insects
 - ENTOM 680 – Aquatic Entomology
 - ENTOM 692 – Insect Ecology
 - ENTOM 710 – Insect Taxonomy
 - ENTOM 732 – Introduction to Plant Resistance to Pests (cross-listed PLPTH 732,
AGRON 732)
 - ENTOM 815 – Experience in Extension Entomology
 - ENTOM 821 – Biological Control
 - ENTOM 840 – Immature Insects
- Plant Pathology
 - PLPTH 610 – Biotechnology (cross-listed AGRON 610)
 - PLPTH 676 – Fusarium Laboratory Workshop
 - PLPTH 730 – Plant Nematology
 - PLPTH 732 – Introduction to Plant Resistance to Pests (cross-listed ENTOM 732,
AGRON 732)
 - PLPTH 750 – Problems in Plant Pathology
 - PLPTH 755 – Plant Resistance to Diseases
 - PLPTH 765 – Integrated Plant Disease Management
 - PLPTH 835 – Plant Virology
 - PLPTH 840 – Plant Pathogenic Bacteria
 - PLPTH 845 – Plant Pathogenic Fungi
 - PLPTH 850 – Introduction to R Programming for Biologists
 - PLPTH 880 – Plant Molecular Biology (cross-listed AGRON 880)
- Agronomy
 - AGRON 610 – Biotechnology (cross-listed PLPTH 610)
 - AGRON 635 – Soil and Water Conservation

- AGRON 645 – Soil Microbiology
- AGRON 650 – Integrated Weed Management
- AGRON 655 – Site Specific Agriculture
- AGRON 660 – Grassland Monitoring and Assessment
- AGRON 662 – Rangeland Watershed Management **Ag*IDEA**
- AGRON 665 – Soil Genesis and Classification
- AGRON 680 – Plant Genetics
- AGRON 681 – Range Ecology
- AGRON 682 – Grassland Fire Ecology **Ag*IDEA**
- AGRON 695 – Climate Change and Agriculture
- AGRON 700 – Agricultural Meteorology
- AGRON 720 – Nutritional Improvement of Food Crops
- AGRON 732 – Introduction to Plant Resistance to Pests (cross-listed PLPTH 732, ENTOM 732)
- AGRON 762 – Range Grasses
- AGRON 781 – Ecology of Invasive Species **Ag*IDEA**
- AGRON 820 – Plant Water Relations
- AGRON 822 – Herbicide Interactions
- AGRON 825 – Soil and Plant Analysis
- AGRON 832 – Grassland Plant Identification **Ag*IDEA**
- AGRON 880 – Plant Molecular Biology (cross-listed PLPTH 880)
- Biology
 - BIOL 604 – Biology of the Fungi
 - BIOL 612 – Freshwater Ecology
 - BIOL 682 – Fish Ecology
 - BIOL 684 – Wildlife Management and Techniques
 - BIOL 687 – Microbial Ecology
 - BIOL 822 – Landscape Ecology
 - BIOL 684 – Plant Responses to the Environment
- Adult Education
 - EDACE 790 – Characteristics of the Adult Learner
 - EDACE 820 – Principles of Teaching Adults
 - EDACE 847 – Adult Learning and Motivation
- Community Development
 - CDPLN 612 – Indian Country Agriculture and Natural Resources
 - CDPLN 620 – Ecological Economics
 - CDPLN 625 – Participatory Action Research Methods (PAR)
 - CDPLN 631 – Leadership for Change
 - CDPLN 702 – Community Engagement **Ag*IDEA**
 - CDPLN 705 – Organizing for Community Change **Ag*IDEA**
 - CDPLN 711 – Immigrants in Communities **Ag*IDEA**
 - CDPLN 712 – Sustainable Communities **Ag*IDEA**
- Leadership
 - LEAD 801 – Foundations of Leadership

- Youth Development
 - HDFS 711 – Foundations of Youth Development
 - HDFS 712 – Community Youth Development **Ag*IDEA**
 - HDFS 713 – Adolescents and Their Families: Implications for Youth Professionals **Ag*IDEA**
 - HDFS 714 – Program Design, Evaluation, and Implementation of Youth Programs **Ag*IDEA**
 - HDFS 715 – Youth Issues and Life Skills
 - HDFS 717 – Youth Policy **Ag*IDEA**
 - HDFS 718 – Youth Professionals as Consumers of Research
 - HDFS 719 – Youth Development Program Administration and Management **Ag*IDEA**
 - HDFS 720 – Youth Development
 - HDFS 722 – Youth and Cultural Contexts **Ag*IDEA**
 - HDFS 724 – Working with Military Families
 - HDFS 725 – Community Mental and Relationship Health Interventions

To apply: <https://www.k-state.edu/grad/admissions/application-process/>

For more information, contact Dr. Cheryl R. Boyer (crboyer@ksu.edu).

- <https://www.k-state.edu/grad/student-success/graduate-handbook/chapter2.html>
- <https://www.k-state.edu/grad/>
- <https://hnr.k-state.edu/academics/graduate-programs/>